

### **REMARKS**

Applicants have carefully reviewed the Office Action mailed May 15, 2006, and thank Examiner Binda for the detailed review of the pending claims. In response to the Office Action, Applicants have amended claims 1, 4-6, 9-14, 21, 23-26 and 29 and cancelled claims 2, 27 and 30. By way of this amendment, no new matter has been added. Claims 31 and 32 stand withdrawn and claims 2-3, 8, 15-19 and 22 stand cancelled. Accordingly, claims 1, 4-7, 9-14, 20-21, 23-26 and 28-29 remain pending in this application. Applicants respectfully request reconsideration of the present application in view of the above amendment and the following remarks. At least for the reasons set forth below, Applicants respectfully traverse the foregoing rejections. Further, Applicants believe that there are also reasons other than those set forth below why the pending claims are patentable, and reserve the right to set forth those reasons, and to argue for the patentability of claims not explicitly addressed herein, in future papers.

### **General Statement**

The Examiner states that claims 1, 6, 9, 14, 25 and 29 are rejected under 35 U.S.C. § 102 (b) as being anticipated by Sloane (U.S. Patent No. 4,484,770) and Rubin (U.S. 2,724,672) (*see the Office Action, Page 3*). Furthermore, the Examiner states claims 1, 24 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by Reid (U.S. 2,370,193) and claims 1, 6 and 25 are also rejected under 35 U.S.C. § 102(b) as being anticipated by Shaw (U.S. 151,166) (*see Office Action, page 4*). However, the Examiner fails to apply particular sections of the references against each of those limitations. If the Examiner intends to maintain this rejection, Applicants respectfully request that the Examiner identify passages in the reference in the next office action which, in his view, allegedly read on the limitations in these claims, or otherwise withdraw the rejection.

### **Claim Objections**

The Examiner has objected to claims 27, 30 and 31 under 37 CFR 1.75 (c), as being in improper form for failing to further limit the subject matter of a previous claim. Claim 31 was previously withdrawn in the Office Action Response dated March 29, 2006, and claims 27 and

30 are cancelled in the present response. Accordingly, the Examiner's objection to these claims is moot and withdrawal of the objection is respectfully requested.

**Claim Rejections – 35 U.S.C. § 102(b)**

**1. The Law**

To anticipate a claim, the reference must teach every element of the claim. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

**2. Clifford (U.S. 373,339)**

Claims 1, 6, 24 and 25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Clifford. (U.S. patent 373,339). Applicants respectfully traverse the rejection.

Clifford teaches a shaft for a screw propeller that “is constructed of a suitable number of tubes...not welded together,” (*see lines 37-39*). However, Clifford does not teach or suggest that the tubes forming the screw propeller are “constructed of an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement” as recited in amended independent claim 1. Thus, Clifford does not teach every limitation of independent claim 1, as required by *Verdegaal Bros.*

While dependent claims 6, 24 and 25 teach additional limitations that are not shown in the prior art, these claims are also patentable by virtue of their dependency on independent claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

**3. Sloane (4,484,770)**

Claims 1, 6, 9, 14, 25 and 29 were rejected under 35 U.S.C. § 102 as being anticipated by Sloane. (U.S. patent 4,484,770). Applicants respectfully traverse the rejection.

Sloane does not teach or suggest that the two tubular conduits must have “an outer surface defined by an invariable outside diameter and an inner surface defined by an invariable inside diameter,” as recited by claims 1, 9 and 14. In fact, Sloane teaches that the tubular liner 11 is reformed “so as to make a tapered seal surface 25” (*see column 2, lines 41-42, see also FIGS. 1 and 7*). Therefore, Sloane is incapable of meeting the limitations of claims 1, 9 and 14, and cannot be used to reject these claims for this reason alone.

Furthermore, Sloane teaches tubings and fittings where a “tubular liner 11 is selected for some special property such as chemical resistance...a convenient example is Teflon,” (*see column 2, lines 14-15*). Sloane does not teach or suggest tubular liner 11 is “constructed of an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement,” as recited by claim 1. Independent claims 9 and 14 both contain the limitation of a tubular support member “comprising of a rigid foamed plastic.” Thus, Sloane does not teach every limitation of independent claims 1, 9 and 14 as required by *Verdegaal Bros.*

Dependant claims 6, 25 and 29 all depend from patentable independent claims 1 and 9. The dependent claims each add additional limitations that are separately patentable. Accordingly, withdrawal of the rejection is respectfully requested.

**4. Rubin (U.S. 2,724,672)**

Claims 1, 6, 9, 14, 25 and 29 were rejected under 35 U.S.C. § 102 as being anticipated by Rubin. (U.S. patent 2,724,672). Applicants respectfully traverse the rejection.

Rubin teaches a layer of solid polymer of polytrifluorochloroethylene bonded to a surface, especially “films or coatings to the interior surfaces of metal or ceramic piping and other cylindrical or irregularly shaped vessels,” (*see column 1, lines 62-64*). In contrast, independent claim 1 includes a tubular support member “constructed of an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement.” Independent claims 9 and 14 include the limitation of a tubular support member “comprising of a rigid foamed plastic.” In fact, Rubin teaches away from an open cell foam “impregnated with one of a resin and a cement,” as the polytrifluorochloroethylene layer includes only “minor amounts of plastic compositions other than the polymers of the present invention which do not materially affect the

characteristics of polytrifluoroethylene.” (See column 6, lines 44-46.) Thus, Rubin does not teach every limitation of independent claims 1, 9 and 14 as required in *Verdegaal Bros.*

Dependant claims 6, 25 and 29 all depend from patentable independent claims 1 and 9. The dependent claims each add additional limitations that are separately patentable. Accordingly, withdrawal of the rejection is respectfully requested.

**5. Reid (U.S. 2,370,193)**

Claims 1, 24 and 25 were rejected under 35 U.S.C. § 102 as being anticipated by Reid. (U.S. patent 2,370,193). Applicants respectfully traverse the rejection.

Reid teaches “two or more paper tubes in a concentric relationship to form a service conduit,” (see column 1, lines 2-4). Accordingly, Reid does not teach a “tubular support member constructed of an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement,” as recited, in part, by claim 1. Thus, Reid does not teach every limitation of independent claim 1 as required in *Verdegaal Bros.*

While dependent claims 24 and 25 teach additional limitations that are not shown in the prior art, these claims are also patentable by virtue of their dependency on independent claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

**6. Shaw (U.S. 151,166)**

Claims 1, 6 and 25 were rejected under 35 U.S.C. § 102 as being anticipated by Shaw (U.S. patent 151,166). Applicants respectfully traverse the rejection.

Shaw teaches a solder-lined sleeve lined with a fusible metal “so that the application of heat to the latter [the fusible metal] will melt down the solder lining,” (see column 1, lines 22-25). Accordingly, Shaw does not teach a “tubular support member constructed of an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement,” as recited by independent claim 1. Furthermore, Shaw does not teach or suggest that the solder-lined sleeve or the solder lining must have an “invariable outside diameter and an inner surface defined by an invariable inside diameter,” as recited by claim 1. Thus, Shaw does not teach every limitation of independent claim 1 as required in *Verdegaal Bros.*

While dependent claims 6 and 25 teach additional limitations that are not shown in the prior art, these claims are also patentable by virtue of their dependency on independent claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

**Claim Rejections – 35 U.S.C. § 103(a)**

**I. The Law**

MPEP Section 2143 sets forth the basic requirements for the Patent and Trademark Office to establish *prima facie* obviousness as follows: “To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). “To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j).

“The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

If the proposed modification makes the prior art reference wholly unsuitable for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). If the proposed modification or combination of references would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out by the reference.” *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

In performing a 35 U.S.C. §103 analysis, it is error to consider “references in less than their entireties, i.e. in disregarding disclosures in the references that diverge from and teach away from the invention at hand.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

**2. McNeeley (U.S. 4,560,012)**

Claims 1, 5-7, 9, 10, 12-14, 20-21, 23-26 and 28-29 were rejected under 35 U.S.C. §103 (a) as being unpatentable over McNeeley, U.S. 4,560,012. Applicants respectfully traverse the rejection.

Independent claim 1 recites, in part, a tubular support member with “an outer surface defined by an invariable outside diameter, said outer surface engaging said inner surface of said tubular member,” (*emphasis added*). In contrast, McNeeley actually **teaches away** from this construction. More specifically, McNeeley recites that “[t]he longitudinally extending inner and outer tube means 31, 32 are circumferentially spaced throughout their longitudinal extent to form an annular space or void 33 therebetween,” (*see column 3, lines 55-57*) (*emphasis added*).

The Examiner mistakenly asserts that “a tubular support member 33a having a generally uniform diameter along its entire length [is] engaging the interior surface of the tubular member,” (*see Office Action, page 4*), but 33a is a filler material, and not a tubular support member. Indeed, McNeeley teaches away from an “outer surface engaging said inner surface of said tubular member,” as McNeeley expressly teaches “the material or substance 33a functions to maintain the intended spaced relationship between the inner and outer tubes 31, 32,” (*emphasis added*) (*see column 3, lines 63-64*). Thus, McNeeley does not obviate Applicants’ invention, as defined by claim 1. Further, as independent claims 9 and 14 also contain the limitation of a tubular support member with “an outer surface defined by an invariable outside diameter to engage said interior surface of said tube,” they are also in condition for allowance for at least the same reasons.

The Examiner concedes that McNeeley does not show the cavity as entirely empty because it includes a hollow element 31 (*see Office Action, page 4*). However, a close reading of McNeeley reveals that “hollow element 31” is actually the inner tube means, while passages 35 and 51 are the hollow tube means. Indeed, passages 35 and 51 “communicate[s] drill fluid

therethrough and to the drilling bit 12 and the lower end of the drill string,” (see column 5, lines 4-6). Thus, McNeely does not teach an “empty cavity” as passages 35 and 51 contain drill fluid.

Independent claims 1, 9 and 14 all recite the limitation of a “cylindrical empty cavity.” Since McNeely does not teach or suggest an empty cavity, but rather a passage for communicating drill fluid (and thus, containing drill fluid), McNeely does not teach or suggest all the limitations of independent claims 1, 9, and 14, as required by MPEP §2143. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

In addition, there is nothing in McNeely that teaches or suggests the inner tube is constructed of “an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement,” as positively recited in independent claim 1. While McNeely does teach by way of example that the filler material 33a of annular void 33 may be a “cellular, foamed plastic or a polyimide type high temperature rigid plastic with or without filler such as expanded mineral granules,” (see column 4, lines 9-12) McNeely still does not teach or suggest inner tube 31 is constructed of “an open-cell foam” (emphasis added). As discussed above, the filler material 33a “functions to maintain the intended spaced relationship between the inner and outer tubes 31, 32” and, thus, **teaches away** from a tubular support member with an “outer surface engaging said inner surface of said tubular member.” Furthermore, McNeely does not teach or suggest inner tube 31 be constructed of “a rigid foamed plastic” as recited by independent claims 9 and 14. Therefore, McNeely is incapable of meeting the limitations of claims 1, 9 and 14, and cannot be used to reject these claims for this reason alone.

Furthermore, the Examiner conceded that McNeely does not “expressly disclose making the tubular member with a thickness generally less than 8 mm and an outer diameter between 40 and 300 mm,” (see *Office Action*, page 5). The Examiner simply asserts that “since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges only involve routine skill in the art,” (see *Office Action*, page 5). However, dependent claims 20 and 21 are patentable by being dependent on allowable base claim 1. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Dependent claims 5-7, 10, 12-13, 20-21, 23-26 and 28-29 teach independently patentable subject matter, although they are also patentable merely by being dependent on an allowable base claim. As an example, claim 5 recites “wherein said open-cell foam is generally flexible before being impregnated with one of said resin and said cement.” These teachings are not taught in the prior art of record.

**3. McNeely (U.S. 4,560,012) in light of Schuermann (EP 0 471,240)**

Dependent claims 4 and 11 were rejected under 35 U.S.C. §103 (a) as being unpatentable over McNeely, U.S. 4,560,012 in view of Schuermann, EP 0 471,240. Applicants respectfully traverse the rejection.

As discussed above, McNeely at least does not teach the limitation of independent claims 1 and 9 of a tubular support member with “an outside surface defined by an invariable outside diameter, the outer surface engaging the inner surface of the tubular member.” Furthermore, McNeely does not teach or suggest that either the inner tube or the outer tube is constructed of “an open-cell foam...wherein said open-cell foam is impregnated with one of a resin and a cement,” as recited in independent claim 1, nor does McNeely teach or suggest that the inner or outer tube be constructed of “a rigid foamed plastic” as recited by independent claim 9. Schuermann also does not teach these claim limitations as well. Rather, Schuermann teaches a single shaft element where the “outer contour of the shaft part is cambered, while the inner shroud surface is designed with a cylindrical shape,” (*see page 3 of the English translation, lines 2-3*). The shaft core is embedded between two fiber layers (7, 8) (*see page 7 of the English translation, claim 3*). Schuermann in no way compensates for the deficiencies of McNeely, as Schuermann only teaches a single shaft with an outer surface that is cambered (*see page 1 of the English translation, lines 1-2*), with a core embedded between two fiber layers.

Because Schuermann only teaches a single shaft element with a cambered outside diameter, one of ordinary skill in the art would have not reasonably expected success in attempting to combine McNeely with Schuermann. In fact, McNeely and Schuermann are incapable of combination, as McNeely teaches “two inner and outer tube means” while Schuermann teaches a single parabolically cambered shaft. The Examiner has made no



showing, and cannot make a showing, that McNeely and Schuermann are capable of combination.

The Office Action alleged that it would have been obvious to one of ordinary skill in the art to combine McNeely with Schuermann “by providing the tubular support member with a plurality of holes in order to provide the shaft with a means for reducing weight,” (*see Office Action, page 5.*) However, even assuming that McNeely and Schuermann taught all of the limitations of claims 1 and 9 discussed above, which it does not, neither reference contains a motivation for one of ordinary skill in the art to have combined McNeely with the teachings of Schuermann. Furthermore, the alleged motivation to combine McNeely with Schuermann would render McNeely ‘wholly unsuitable for its intended purpose’. McNeely teaches a drill collar where “the extending inner and outer tube means 31 and 32 are circumferentially spaced,” while Schuermann teaches a single parabolically cambered shaft. McNeely teaches that the inner and outer tube means “bends less than conventional heavy, thick wall drill collars under the same end loading conditions, achieving and maintaining a high hole angle, which, for all practical purposes, cannot be accomplished with heavy, solid wall drill collars,” (*emphasis added*) (*see columns 1 and 2, lines 67-68 and 1-3*). Thus, the drill collar of McNeely must be constructed of separate inner and outer tube means and not a solid shaft. Therefore, the Examiner has failed to establish a *prima facie* case for the combination of McNeely and Schuermann, as required by *In re Gordon*.

Thus, as base claims 1 and 9 are patentable, the pending rejection of dependent claims 4 and 11 should be withdrawn.

**Conclusion**

In view of the above amendment and remarks, the pending application is in condition for allowance. If, however, there are any outstanding issues that can be resolved by telephone conference, the Examiner is earnestly encouraged to telephone the undersigned representative.

A one-month extension is requested under 37 CFR 1.136(a) with the present response. Please charge our Deposit Account No. 07-1360 the necessary fee, under Order No. G00352/US, from which the undersigned is authorized to draw.

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Respectfully submitted,



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